

WHAT IS CLAIMED IS:

1 1. An angular optical component retention and removal system for use with an optical
2 communications equipment shelf having a faceplate, the faceplate being provided vertically in the
3 optical communications equipment shelf, comprising:

4 a housing having at least one opening provided therein communicating with an
5 opening provided in the faceplate, wherein said housing connects to the faceplate, the housing
6 opening is provided at an angle less than ninety degrees from the vertically-arranged faceplate, and
7 the housing opening receives and retains at least one optical component.

1 2. An angular optical component retention and removal system as recited in claim 1,
2 wherein the housing opening is provided at an angle that prevents a fiber optic cable connected to the
3 optical component from being bent beyond its minimum bend radius.

1 3. An angular optical component retention and removal system as recited in claim 1,
2 wherein the housing opening is provided at an angle between about forty degrees and about fifty-five
3 degrees from the vertically-arranged faceplate.

1 4. An angular optical component retention and removal system as recited in claim 1,
2 wherein said housing includes a pair of sidewalls forming the housing opening therebetween.

1 5. An angular optical component retention and removal system as recited in claim 4,
2 wherein each sidewall includes a slot for receiving a spring retainer of the optical component that
3 retains the optical component in the housing opening between the sidewalls.

1 6. An angular optical component retention and removal system as recited in claim 5,
2 further comprising:

3 an insertion/removal mechanism for inserting and removing the optical component to
4 and from the housing opening.

1 7. An angular optical component retention and removal system as recited in claim 6,
2 wherein said insertion/removal mechanism comprises:

3 a handle portion; and

4 two sidewall portions connected together by a cross member, wherein the two
5 sidewall portions are spaced from one another to fit within the sidewalls of said housing, the handle
6 portion is connected to at least one sidewall portion, and each sidewall portion includes a cam
7 section.

1 8. An angular optical component retention and removal system as recited in claim 7,
2 wherein each cam section engages a corresponding spring retainer of the optical component and
3 forces each corresponding spring retainer from a corresponding housing slot to aid in removal of the
4 optical component from said housing.

1 9. An angular optical component retention and removal system as recited in claim 7,
2 wherein each housing sidewall includes a cam slot for receiving a corresponding cam section of the
3 insertion/removal mechanism.

1 10. An angular optical component retention and removal system as recited in claim 2,
2 wherein the fiber optic cable connected to the optical component extends away from the faceplate a
3 distance that is less than a distance a horizontally-disposed fiber optic cable extends away from the
4 faceplate.

1 11. An angular optical component retention and removal system as recited in claim 10,
2 wherein the fiber optic cable extends a distance of about 1.5 inches less than the distance the
3 horizontally-disposed fiber optic cable extends away from the faceplate.

1 12. An insertion/removal mechanism for inserting and removing an optical component to
2 and from an optical communications equipment shelf having a faceplate, the insertion/removal
3 mechanism comprising:
4 a handle portion; and
5 two sidewall portions connected together by a cross member, wherein the two
6 sidewall portions are spaced from one another to fit within an opening of the faceplate, the handle
7 portion is connected to at least one sidewall portion, and each sidewall portion includes a cam
8 section.

1 13. An insertion/removal mechanism as recited in claim 12, wherein each cam section
2 engages a corresponding spring retainer of the optical component to aid in removal of the optical
3 component from the faceplate.

1 14. A method of retaining an optical component in an angular orientation in an optical

communications equipment shelf having a faceplate, the faceplate being provided vertically in the optical communications equipment shelf, comprising:

inserting the optical component in a housing having at least one opening provided therein communicating with an opening provided in the faceplate, wherein the housing connects to the faceplate, and the housing opening is provided at an angle less than ninety degrees from the vertically-arranged faceplate; and

retaining the optical component in the housing opening.

15. A method of retaining an optical component as recited in claim 14, wherein the housing opening is provided at an angle that prevents a fiber optic cable connected to the optical component from being bent beyond its minimum bend radius.

16. A method of retaining an optical component as recited in claim 14, wherein the housing opening is provided at an angle between about forty degrees and about fifty-five degrees from the vertically-arranged faceplate.

17. A method of retaining an optical component as recited in claim 14, wherein said housing includes a pair of sidewalls forming the housing opening therebetween.

18. A method of retaining an optical component as recited in claim 17, further comprising:

retaining the optical component in the housing opening between the sidewalls with a slot provided in each sidewall that receives a spring retainer of the optical component.

1 19. A method of retaining an optical component as recited in claim 18, further
2 comprising:

3 providing an insertion mechanism for inserting the optical component into the
4 housing opening.

1 20. A method of retaining an optical component as recited in claim 19, wherein the
2 insertion mechanism comprises a handle portion and two sidewall portions connected together by a
3 cross member, wherein the two sidewall portions are spaced from one another to fit within the
4 housing sidewalls, the handle portion is connected to at least one sidewall portion, and each sidewall
5 portion includes a cam section.

1 21. A method of removing an optical component retained in a faceplate of an optical
2 communications equipment shelf, comprising:

3 pulling an insertion/removal mechanism connected to the optical component away
4 from the faceplate, wherein the insertion/removal mechanism includes a handle portion, and two
5 sidewall portions connected together by a cross member, the two sidewall portions are spaced from
6 one another to fit within an opening of the faceplate, the handle portion is connected to at least one
7 sidewall portion, and each sidewall portion includes a cam section.

1 22. A method of removing an optical component as recited in claim 21, further
2 comprising:

3 engaging spring retainers of the optical component with the cam sections of the

- 4 insertion/removal mechanism to aid in removal of the optical component from the faceplate.